RISK MANAGEMENT

AT THE

EUROPEAN SPACE AGENCY - 2005

AN OVERVIEW

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1. Recent ESA risk management initiatives

Risk Management introduced at ESA corporate level in 2001 as a requirement (ESA / ADMIN (2001) 2)

The ESA risk management policy is under revision.

Internal training courses on risk management are hold.

The ECSS standard on risk management is M-00-03. A draft level 3 standard on safety risk assessment is on hold. There is a new standard Q-20-04 on critical item control.

ESA - TEC-Q (PA & Safety Dept.) activities include:

- PRA pilot application to ISS payloads in support of the PSRP,
- Definition of draft format & methodology for risk assessment:

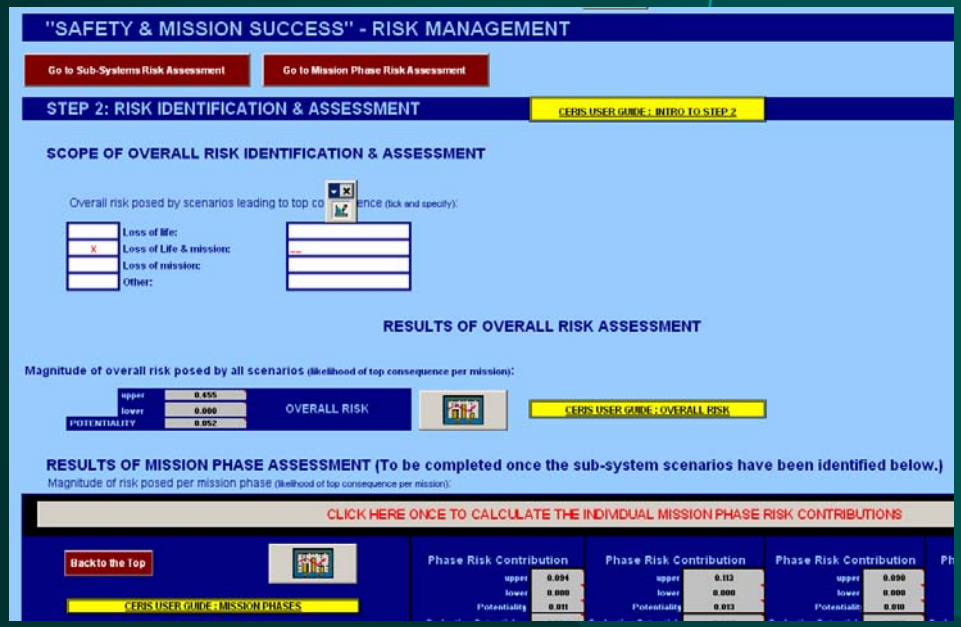
1. Recent ESA risk management initiatives (continued)

Risk Domain:										
RISK IDENTIFICATION			RISK ASSESSMENT			RISK RANKING			RISK REDUCTION & ACCEPTANCE	
Risk Scenario: Cause - Events – Consequence			Severity	Likeli hood	Risk Index	Risk Horizon	Risk Victim	Rank of risk	Risk Owner Action / Status	Acceptance of residual risk. Trend:
			High	Medium	High	Short term				
			High	Low	Low	Medium term				
			Medium	Medium	Medium					
			High	Medium	High	Medium term				

2. Examples of risk management implementations

CDF is the ESA - Concurrent Design Facility

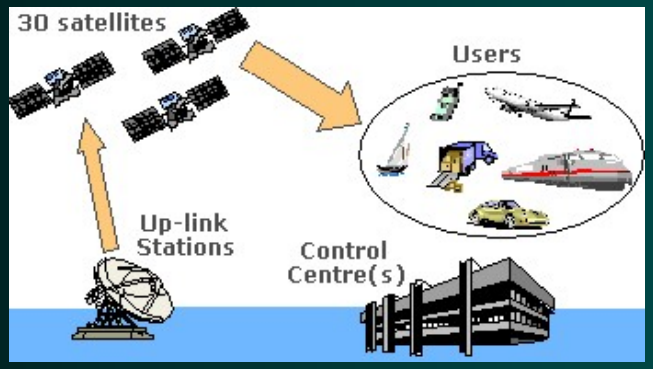
- Risk management is implemented on all CDF projects
- CERIS is the new CDF risk management workstation:



2. Examples of risk management implementations (continued)

Galileo is Europe's novel satellite navigation system for advanced global civil positioning services

- Risk management is implemented on the Galileo programme and the System Test Bed V2 (GSTB-V2) project

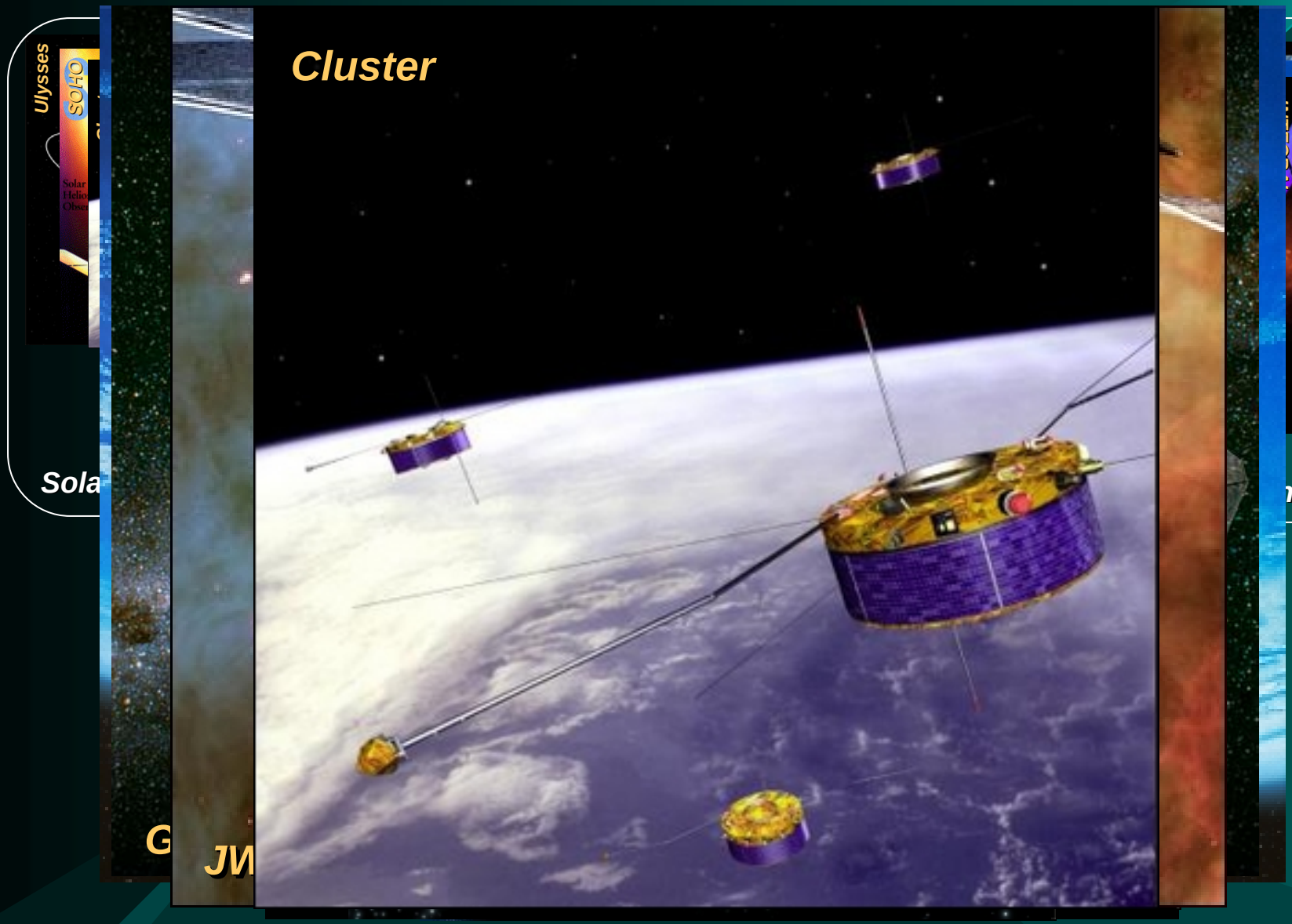


- Use of the "risk management information system"

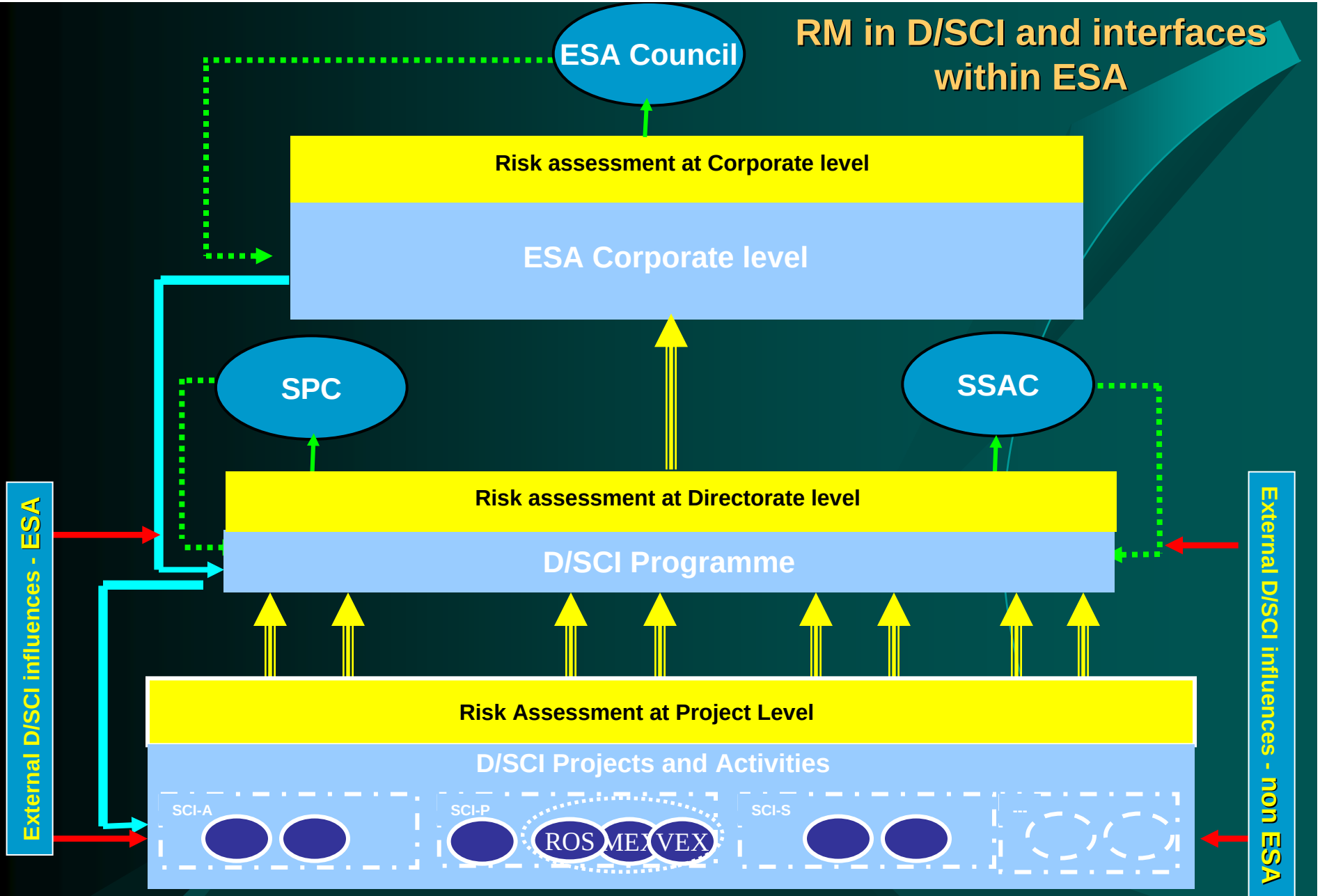
3. Risk management on ESA science projects

- Scientific programme is the only mandatory programme at ESA
  ➔ Risk management is a vital element to ensure the budget is used adequately
- Structured risk management approach introduced in D/SCI in 2000 and coherent with corporate approach
- Qualitative risk management used in D/SCI (compliant with ECSS & ISO standards)
- Similar approach used by NASA on collaborative projects (e.g. Cassini-Huygens, JWST)

Cosmic Vision 2020



RM in D/SCI and interfaces within ESA



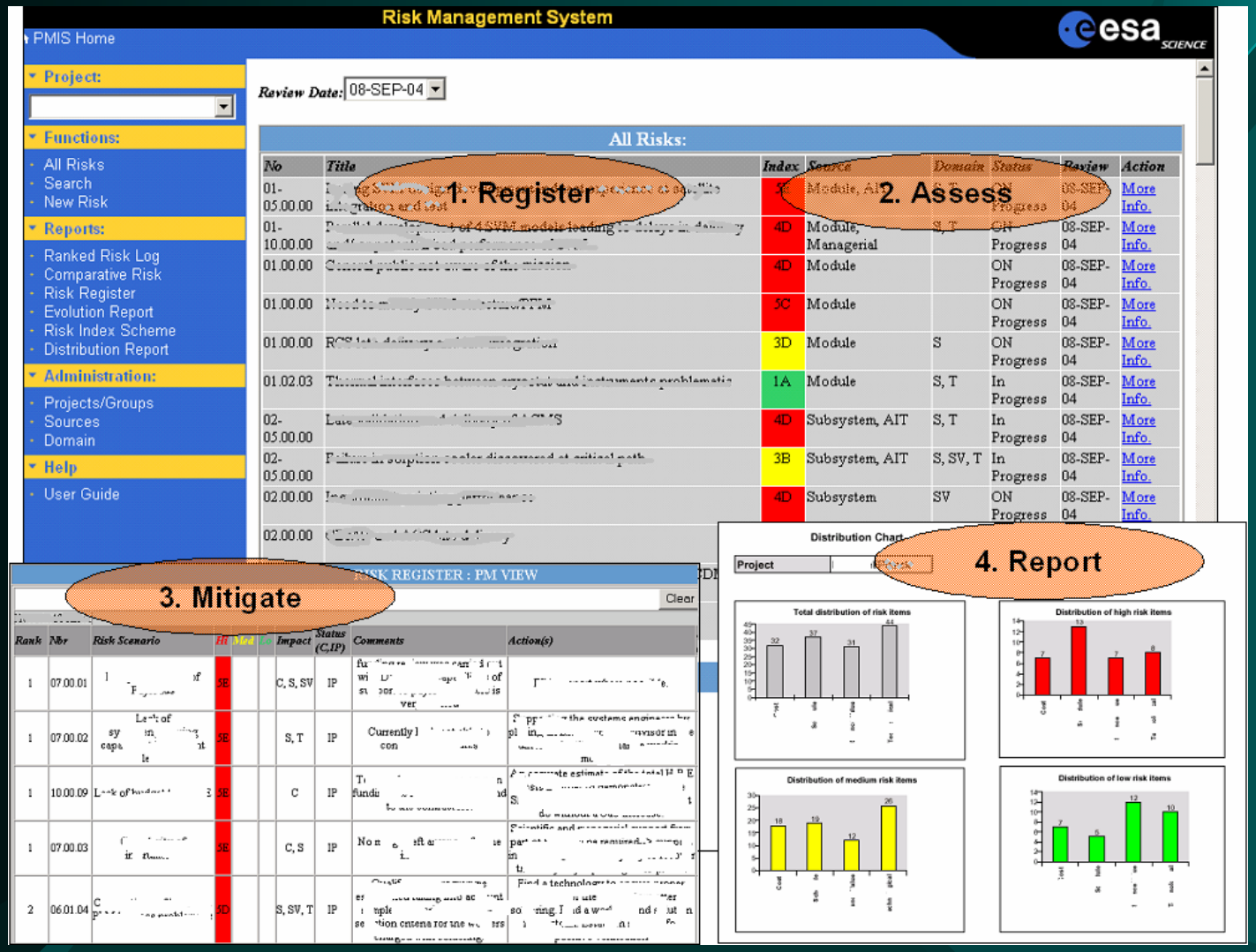
Risk management tool & documentation

"Risk Management Information System" RMIS:

- Implemented in 2002 on scientific projects, multi user database, web based.
- Supports the whole "risk management process" (identification of risks, rating and ranking , assignment of mitigation actions / actionees / action dates, and monitoring/communication of risks and of corrective actions planned).

- Tracking evolution of risks per project, along whole project life-cycle.
- Providing a basis for a cross-projects knowledge management data base.

Risk management tool & documentation (continued)



New risk management initiatives in the science directorate

- Enhancement of RMIS to reflect different views (team, project manager, head of department etc.) and ease reporting at all levels.
- “Qualitative” approach complemented with a “quantitative” approach to quantify cost and schedule impacts and plan consequently contingencies.
- Link between the future “lessons learned database” and the “risk management database”.

Risk management and “lessons learned”

Lessons Learned are part of ESA’s reviews output

1. RMIS ⟹ Lessons learned: to capitalise for the future on negative or positive RM experience on current / recently accomplished projects and generate “best practices”.

2. Lessons learned ⟹ RMIS: based on lessons learned from projects in the past, help prevent current risks from becoming problems (create a checklist to be used at the beginning of the project).

4. Conclusion

There is growing awareness of the need for risk management at ESA:

- **Risk management is implemented on most ESA projects (Risk Assessments required from ESA contractors).**
- **Quantification of costs of risks is major step to forecast contingencies in a harsh economic environment.**